

1941

Results of the Cooperative Uniform Soybean Nurseries

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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF PLANT INDUSTRY
cooperating with
BUREAU OF AGRICULTURAL CHEMISTRY AND ENGINEERING
and the
STATE AGRICULTURAL EXPERIMENT STATIONS
OF THE NORTH CENTRAL REGION

RESULTS OF THE COOPERATIVE UNIFORM
SOYBEAN NURSERIES

1941

(Not for Publication)

U. S. Regional Soybean Industrial
Products Laboratory, Urbana, Ill.
February - 1942

RESULTS OF THE COOPERATIVE UNIFORM SOYBEAN NURSERIES 1941

Compiled by Jackson L. Cartter, Leonard F. Williams,
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INTRODUCTION

One of the purposes of the U. S. Regional Soybean Industrial Products Laboratory 2/ was to develop improved varieties and strains of soybeans for industrial utilization. To provide a more rapid and accurate method of evaluating new strains developed through the cooperative breeding work, two uniform soybean variety and strain tests were established in the spring of 1939. One of these, now designated the Uniform Test Group II, was made up of varieties and selections of suitable maturity for the northern part of the soybean region and was planted that season at nine locations extending from Ohio to Iowa. The late nursery (Group IV) composed of strains having a maturity later than Illini and Dunfield was planted at 11 locations

-
- 1/ Agronomist, Assistant Agronomist, Junior Agronomist, and Cooperative Agent, respectively, Division of Forage Crops, Bureau of Plant Industry. Credit is due Ruth E. Schmutzler for assistance in tabulating and summarizing the data.
- 2/ A cooperative organization participated in by the Bureaus of Agricultural Chemistry and Engineering and Plant Industry of the U. S. Department of Agriculture and the Agricultural Experiment Stations of the North Central states of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

in southern Indiana, Illinois, and Missouri. The work was continued during 1940 and 1941 with the addition of the uniform midseason nursery (Group III) designed to test selections intermediate in maturity between the first two tests.

This present report includes the detailed results of the Uniform Tests for the 1941 season, as well as the 2- and 3-year summaries of agronomic and chemical information obtained on the strains.

COOPERATING AGENCIES AND PERSONNEL

Bureau of Plant Industry:

Division of Forage Crops and Diseases: Jackson L. Cartter, Leonard F. Williams, Albert H. Probst, Martin G. Weiss (on military furlough), Charles R. Weber, Denver I. Allen, Forest K. Jay

Bureau of Agricultural Chemistry and Engineering: Turner H. Hopper

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Agronomy Department: W. L. Burlison, C. M. Woodworth

Indiana Agricultural Experiment Station:

Agronomy Department: G. H. Cutler

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Farm Crops Department: H. D. Hughes

Missouri Agricultural Experiment Station:

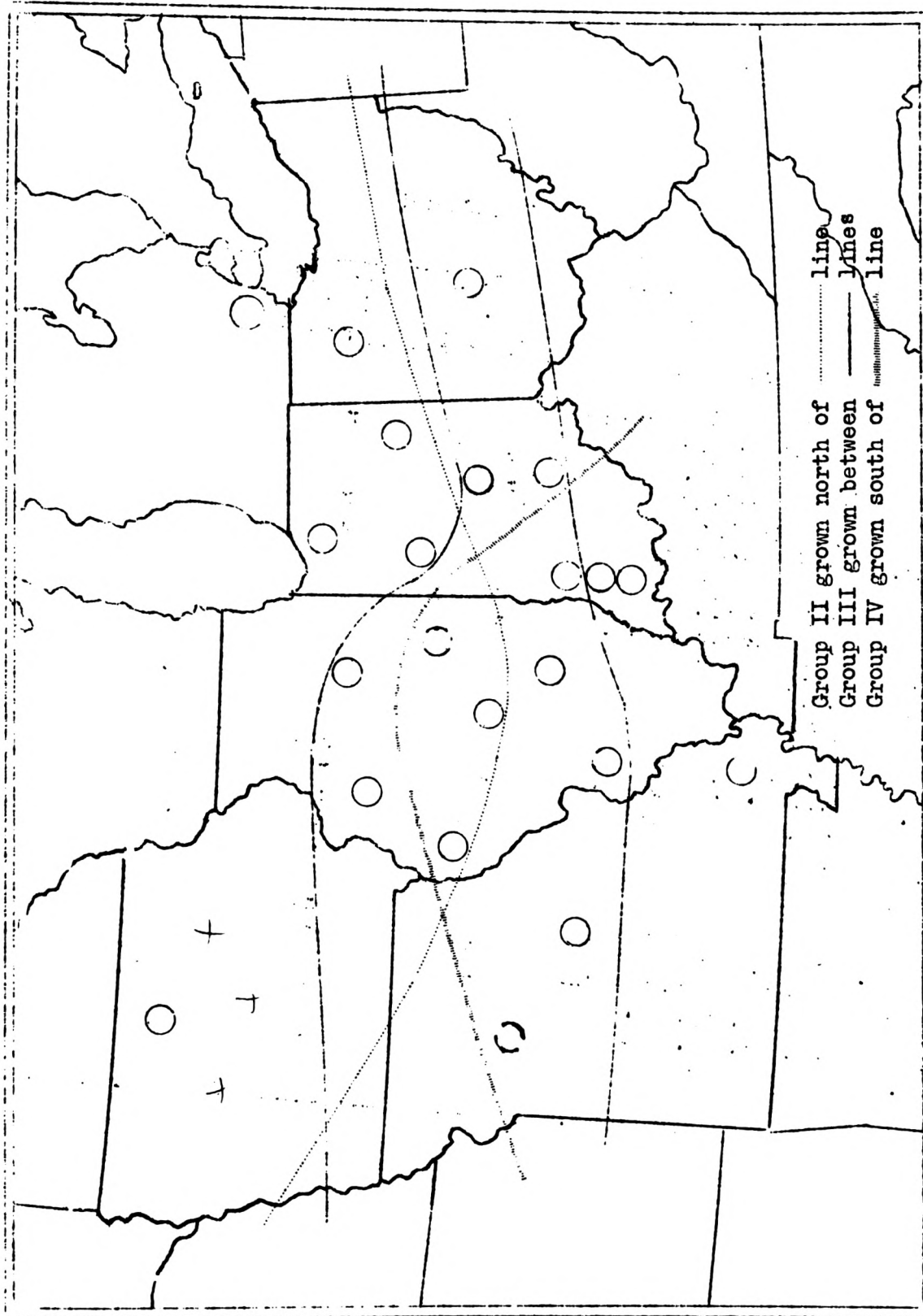
Field Crops Department: W. C. Etheridge

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Agronomy Department: R. D. Lewis

LOCATION OF COOPERATIVE NURSERIES

Location	Cooperator	Uniform Test Group II	Uniform Test Group III	Uniform Test Group IV
Holgate, Ohio	Nw. Br. Ohio Agr. Exp. Sta.	x		
Columbus, Ohio	Ohio Agr. Exp. Sta.		x	
Dearborn, Mich.	Ford Motor Co.	x		
Bluffton, Ind.	Gerald Bayless	x		
Fortville, Ind.	Guy Bolander		x	
North Vernon, Ind.	Charles Robbins		x	
Lafayette, Ind.	Purdue Agr. Exp. Sta.	x		
Wanatah, Ind.	Purdue Agr. Exp. Sta.	x		
Evansville, Ind.	Louis Wagner			x
Wheatland, Ind.	B. F. Carr			x
Mt. Vernon, Ind.	David Hasting			x
Urbana, Ill.	Ill. Agr. Exp. Sta.	x	x	x
Stonington, Ill.	Frank Garwood & Sons	x	x	x
Edgewood, Ill.	F. V. Wilson & Son		x	x
Freeburg, Ill.	Boren Wilderman		x	x
Dwight, Ill.	Frank Roeder	x	x	
Clayton, Ill.	Russell S. Davis	x	x	x
London Mills, Ill.	Guy S. Routh	x	x	
Kanawah, Iowa	North Iowa Exp. Assn.	x		
Columbia, Mo.	Mo. Agr. Exp. Sta.		x	x
Sikeston, Mo.	Mo. Agr. Exp. Sta.			x
Carrollton, Mo.	Roy Monier		x	x



Map of Soybean Belt showing location of the Cooperative Uniform Tests

METHODS

The tests have been planted in replicated row plots, using either a lattice square design with three replications or a restricted randomized block design with four replications. Row widths have been those in common use by the cooperating stations or for the outlying nurseries by the cooperating farmers. In most cases two hundred viable seed per row have been planted and stands have been satisfactory throughout the region.

Yields were taken on individual replications after all samples in a test had been dried to a uniform moisture basis.

Chemical composition was determined for each strain on composite samples prepared by combining equal amounts of seed from every location included in each Uniform Test. The location composites were prepared by combining equal weights of seed of each of the strains in a group at an individual location. Percentage composition of the seed is expressed on a moisture-free basis. Seed size was also determined on this composite sample and recorded as weight (in grams) per 100 seed.

Lodging notes were recorded on a scale of 1 to 5 as follows:

1. Almost all plants erect
2. Either all plants leaning slightly, or a few plants down
3. Either all plants leaning moderately, or 25% to 50% of the plants down
4. Either all plants leaning considerably, or 50% to 80% of the plants down badly
5. All plants down badly

Height was determined as the length of plant from the ground to the growing tip at time of maturity.

Maturity was taken as the date when the leaves had dropped and the stems and pods were sufficiently dry for combine harvesting. Maturity

was expressed as days earlier (-) or later (+) than a standard or reference variety. For the Uniform Tests, Group II and Group III, Illini was used as the reference variety. For the Uniform Test, Group IV, the variety Gibson was used.

Seed quality was expressed on a uniform scale from 1 to 5 as follows:

1. Very good
2. Good
3. Fair
4. Poor
5. Very poor

In estimating seed quality the factors considered were: development of seed, wrinkling, damage, and abnormal color for the variety.

UNIFORM TEST, GROUP II

The Group II test in 1941 was composed of nine strains in commercial production, five USDA foreign introductions and ten selections from hybrids. The origin of these strains in Uniform Test Group II, 1941, is as follows:

Strain	Source or Originating Agency	Origin
Dunfield	Purdue Agr. Exp. Sta.	PI 36846 1/
Mandell	Purdue Agr. Exp. Sta.	Selection from Manchu
Richland	Purdue Agr. Exp. Sta.	PI 70502-2
C7	Purdue Agr. Exp. Sta.	CX331-412-1-2-1 (Illini x Mandell)
C28	Purdue Agr. Exp. Sta.	CX931-1 (Natural hybrid)
C83	Purdue Agr. Exp. Sta.	CX431-209-1-2-2 (Illini x Midwest)
C163	Purdue Agr. Exp. Sta.	CX331-457-2-3-1 (Illini x Mandell)
C164	Purdue Agr. Exp. Sta.	CX431-39-1-3-1 (Illini x Mandell)
Mukden	Iowa Agr. Exp. Sta.	PI 50523-Q
Linman 533	Iowa Agr. Exp. Sta.	Selection from Manchu
Mingo	Ohio Agr. Exp. Sta.	Selection from Manchu
Seneca	New York	F.C. 03654G 2/
Illini	Illinois Agr. Exp. Sta.	Selection from A.K.
L6-5	Illinois Agr. Exp. Sta.	Selection from (Mandarin x Mansoy)
L6-12	Illinois Agr. Exp. Sta.	Selection from (Mandarin x Mansoy)
L6-685	Illinois Agr. Exp. Sta.	Selection from (Mandarin x Mansoy)
L6-700	Illinois Agr. Exp. Sta.	Selection from (Mandarin x Mansoy)
L6-720	Illinois Agr. Exp. Sta.	Selection from (Mandarin x Mansoy)
PI 68474	U.S. Dept. of Agriculture	Foreign Plant Introduction
PI 70478	U.S. Dept. of Agriculture	Foreign Plant Introduction
PI 88447-2	U.S. Dept. of Agriculture	Foreign Plant Introduction
PI 91161	U.S. Dept. of Agriculture	Foreign Plant Introduction
PI 92717	U.S. Dept. of Agriculture	Foreign Plant Introduction
Wis. Manchu 3	Wis. Agr. Exp. Sta.	Selection from Manchu
Wis. Manchu 606	Wis. Agr. Exp. Sta.	Selection from Manchu

1/ Division of Plant Exploration and Introduction, Bureau of Plant Industry, U.S.D.A.

2/ Division of Forage Crops & Diseases, Bureau of Plant Industry, U.S.D.A.

The group of hybrids has in general been very promising. Yields should be compared with the idea of relative maturity in mind. The selection C28, for instance, is relatively low yielding; but it is by far the earliest strain in the test, while C163--although relatively high in yield--is quite late for this test. C163, C83, C164, C7, and 88447-2 are all later than Illini and so will not be continued in the 1942 test.

In general most of the tests in 1941 were quite satisfactory. The coefficients of variability range from 7.0% to 15.0%. A summary of the combined analysis of variance is given in Table 8. It will be noted that the varieties x locations interaction, though not large, is highly significant.

A summary of the 2-year averages is given in Table 9. Strains L6-685 and L6-12 have been consistently high in yield in the two years, as well as in previous non-uniform tests. These two strains are only slightly earlier than Illini. They have had the highest quality seed for the two-year average; and L6-685 has been outstanding in resistance to lodging, although not the best in this respect. A study of the chemical data in Table 9 also indicates that L6-685 is outstanding in percent of oil and iodine number of oil. Table 11 presents a summary of individual analyses of L6-12 and L6-685 compared to three good commercial varieties. It will be noted that L6-685 has been consistent in its superiority in percent oil. It is planned to increase this latter strain in 1942 with a view toward a possible release.

The introductions PI 68474, PI 91161, and PI 70478 have all exceeded Dunfield in percent oil for the 2-year period and probably will prove to be valuable in the breeding program, although they are not outstanding in yield or lodging resistance, PI 68474 is probably the best of the three, since it has been higher in yield, earlier, and has a satisfactory iodine number; while PI 91161 and PI 70478 are, like Dunfield, Richland, and Mukden, low in this respect.

PI 92717 may also prove valuable in the breeding program.

Table 1. Summary of agronomic and chemical data for the strains in the Uniform Test, Group II, 1941.

Strain	No. of Sta.	Yield	Lodg- ing	Height	Matu- rity	Seed Qual- ity	Seed Size	Per-			Iodine number of oil
								cent	Pro- tein	Oil	
		ll	9	5	10	9	ll*	ll*	ll*	ll*	ll*
~ L6-685		33.1	2.1	36	-2.1	1.7	15.2	41.4	21.7		133
~ L6-12		32.8	2.4	35	-2.3	1.8	14.7	42.0	21.1		133
~ L6-700		31.3	2.7	36	-3.2	1.9	15.9	44.2	20.3		131
CL63		28.8	2.8	38	+4.0	2.3	14.5	43.7	20.4		130
Mingo		28.6	2.9	34	-1.0	2.9	15.8	43.7	20.3		130
C83		28.5	3.0	38	+2.7	2.4	14.7	43.9	20.1		129
L6-5		28.5	2.3	37	-3.0	1.7	14.2	46.5	18.3		128
92717		28.5	2.5	33	-5.1	2.3	14.0	43.2	20.1		132
Illini		28.4	2.8	37	0.0	1.9	14.3	41.5	20.5		131
CL64		28.4	2.3	37	+5.9	2.2	16.6	43.9	19.7		131
L6-720		28.0	2.0	42	-3.5	1.7	13.9	46.5	18.1		128
Mandell		27.6	2.4	34	-1.9	2.3	14.6	45.1	19.0		130
C7		27.1	2.5	38	+6.5	2.1	14.7	44.1	19.5		131
Dunfield		27.0	2.6	34	-1.3	2.3	16.9	41.0	21.3		123
91161		26.5	2.9	32	-5.3	2.7	15.8	40.8	21.0		124
68474		26.1	2.8	28	-8.7	2.1	14.5	40.6	21.3		128
88447-2		26.0	3.1	37	+5.1	2.5	15.6	42.8	19.5		130
Mukden		25.1	2.1	36	-5.3	2.4	14.3	44.6	19.6		125
70478		24.5	2.7	28	-6.2	2.1	14.3	40.5	21.6		124
Linman 533		23.8	2.6	31	-6.1	2.8	17.0	43.3	20.4		129
Wis. Man. 3		23.4	2.8	36	-5.2	3.1	16.5	43.5	20.1		128
C28		23.2	2.3	33	-13.4	2.6	14.3	44.3	20.3		129
Richland		23.0	1.7	30	-6.1	2.7	16.3	41.9	20.4		123
Seneca		22.9	2.2	33	-7.3	1.8	15.0	42.4	20.1		130
Wis. Man. 606		21.9	2.4	31	-11.0	3.1	15.8	44.4	20.3		129

*Composite sample of nine locations, composition on dry basis.

Table 2. Summary of yields in bushels for the strains in the Uniform Test, Group II, 1941.

Strain	Mean	Dwight Ill.	Urbana Ill.	Lafayette Ind.	Dearborn Mich.	Clayton Ill.	Bluffton Ind.	Stonington Ill.	Holgate Ohio	London Mills Ill.	Kanawha Iowa	Wanatah Ind.
L6-685	33.1	53.4	45.6	40.7	37.9	38.1	32.4	31.8	27.1	21.5	18.9	16.4
L6-12	32.8	52.9	43.8	40.7	32.0	36.0	31.9	34.4	29.5	21.3	18.5	19.3
L6-700	31.3	51.3	41.1	39.5	33.3	35.5	30.0	30.3	27.4	22.8	18.6	14.2
Cl63	28.8	47.1	38.8	33.6	36.6	30.1	24.3	30.2	24.3	23.1	16.9	11.9
Mingo	28.6	40.7	39.6	35.0	29.8	33.1	26.0	26.2	27.7	20.8	20.4	15.6
C83	28.5	47.2	38.8	34.2	32.6	32.2	25.8	31.2	24.0	19.9	16.1	11.8
L6-5	28.5	50.3	42.1	34.0	28.9	30.6	25.0	27.2	24.6	19.1	18.0	14.0
92717	28.5	43.9	38.3	36.6	33.7	28.2	26.6	25.3	29.7	17.4	19.1	14.8
Illini	28.4	46.8	35.9	32.2	37.4	28.5	27.2	26.4	24.1	20.7	20.0	13.7
Cl64	28.4	46.9	41.7	33.9	32.7	33.0	25.8	28.9	26.9	21.0	11.1	10.6
L6-720	28.0	43.3	40.0	33.0	36.8	28.7	25.7	24.9	28.7	17.3	17.6	13.2
Mandell	27.6	46.8	39.1	36.2	25.5	30.1	26.0	26.6	20.0	18.5	21.4	10.2
C7	27.1	45.8	44.0	34.8	23.3	33.8	22.6	25.1	21.9	21.6	11.3	12.0
Dunfield	27.0	43.6	38.8	32.6	27.9	31.4	23.0	27.7	21.5	19.7	17.0	13.9
91161	26.5	44.4	35.6	28.9	34.1	27.5	24.4	23.8	25.0	18.9	17.0	12.4
68474	26.1	45.2	34.8	28.2	26.6	28.2	24.8	24.6	27.5	18.4	13.9	14.4
88447-2	26.0	40.6	35.4	37.2	25.7	29.7	23.2	25.6	24.6	21.1	11.6	11.8
Mukden	25.1	40.2	32.5	31.0	32.1	24.8	23.8	23.0	22.3	16.1	17.9	12.7
70478	24.5	34.9	34.0	28.2	27.4	27.8	25.4	22.9	23.8	18.0	13.1	14.0
Linman 533	23.8	34.5	29.1	29.1	26.3	25.6	25.8	17.6	23.0	16.5	20.2	13.8
Wis.Man. 3	23.4	36.3	29.9	27.3	28.6	26.2	24.2	20.0	24.1	14.6	15.6	10.5
C28	23.2	37.6	27.6	29.8	29.8	23.7	24.0	17.6	20.3	13.8	17.7	13.0
Richland	23.0	34.4	34.8	27.9	23.5	27.8	22.9	18.5	22.0	14.8	15.1	11.5
Seneca	22.9	36.4	33.7	30.4	25.3	25.3	22.4	21.5	13.7	13.3	16.8	13.2
Wis.Man. 606	21.9	33.6	30.8	27.9	25.3	22.7	20.5	15.0	23.2	13.6	16.7	11.8
Mean	26.9	43.1	37.0	32.9	30.3	29.5	25.3	25.1	24.3	18.5	16.8	13.2
Coef. of Var. (%)	11.3	11.7	10.5	7.7	10.6	9.6	9.4	7.0	9.4	9.4	15.0	13.1
Bu. Nec. for sig. (5% level)	2.2	8.5	6.5	3.6	5.4	4.8	4.5	3.0	3.2	3.4	4.2	2.4

Table 3. Summary of rank for yield, arranged in order of mean yields, for the Uniform Test, Group II, 1941.

Strain	Dwight Ill.	Urbana Ill.	Lafayette Ind.	Dearborn Mich.	Clayton Ill.	Bluffton Ind.	Stoughton Ill.	Holgate Ohio	London Mills Ill.	Kanawha Iowa	Wanatah Ind.
L6-685	1	1	1	1	1	1	2	7	4	6	2
L6-12	2	3	1	11	2	2	1	2	5	8	1
L6-700	3	6	3	7	3	3	4	6	2	7	6
Cl63	6	10	12	3	10	16	5	12	1	15	18
Mingo	16	8	7	12	5	6	11	4	8	2	3
C83	5	10	9	9	7	8	3	15	10	18	19
L6-5	4	4	10	14	9	13	8	10	12	9	7
92717	12	13	5	6	15	5	13	1	17	5	4
Illini	8	14	15	2	14	4	10	13	9	4	11
Cl64	7	5	11	8	6	8	6	8	7	25	23
L6-720	15	7	13	4	13	11	15	3	18	12	12
Mandell	8	9	6	15	10	6	9	24	14	1	25
C7	10	2	8	22	4	23	14	21	3	24	17
Dunfield	14	10	14	17	8	21	7	22	11	13	9
91161	13	15	20	5	19	15	17	9	13	13	16
68474	11	17	21	19	15	14	16	5	15	21	5
88447-2	17	16	4	21	12	20	12	10	6	23	19
Mukden	18	21	16	10	23	19	18	19	20	10	15
70478	22	19	21	18	17	12	19	16	16	22	7
Linman 533	23	24	19	20	21	8	23	18	19	3	10
Wis.Man. 3	21	23	25	15	20	17	21	14	22	19	24
C28	19	25	18	12	24	18	23	23	23	11	14
Richland	24	17	23	25	17	22	22	20	21	20	22
Seneca	20	20	17	23	22	24	20	25	25	16	12
Wis.Man. 606	25	22	23	23	25	25	25	17	24	17	19

Table 4. Summary of plant height for the strains in the Uniform Test, Group II, 1941.

Strain	Mean	Lafayette Ind.	Bluffton Ind.	Holgate Ohio	Kanawha Iowa	Wanatah Ind.
L6-685	36	43	37	30	41	27
L6-12	35	41	36	30	41	27
L6-700	36	41	37	32	42	27
C-163	38	47	41	34	42	27
Mingo	34	40	37	32	37	24
C83	38	45	40	31	43	32
L6-5	37	42	38	34	42	27
92717	33	38	35	30	37	23
Illini	37	43	37	33	42	31
Cl64	37	45	38	32	43	28
L6-720	42	56	44	36	44	30
Mandell	34	37	35	33	42	26
C7	38	49	37	34	43	28
Dunfield	34	41	34	30	39	27
91161	32	38	34	30	31	26
68474	28	34	31	27	30	22
88447-2	37	45	39	35	42	28
Mukden	36	43	36	31	44	30
70478	28	33	29	26	29	24
Linman 533	31	38	31	28	35	25
Wis.Man. 3	36	42	37	33	38	31
C28	33	39	35	29	34	27
Richland	30	34	31	29	32	25
Seneca	33	39	35	25	37	28
Wis.Man. 606	31	37	31	26	36	27

Table 5. Summary of lodging notes for the strains in the Uniform Test, Group II, 1941.

Strain	Mean	Dwight Ill.	Urbana Ill.	Lafayette Ind.	Dearborn Mich.	Clayton Ill.	Bluffton Ind.	Stonington Ill.	Kanawha Iowa	Wanatah Ind.
L6-685	2.1	3	3	2	3	1	1	3	2	1
L6-12	2.4	4	3	2	2	2	1	3	3	1
L6-700	2.8	5	3	4	4	1	2	2	3	1
C-163	2.8	3	3	3	4	3	2	3	3	1
Mingo	3.1	2	4	4	4	3	2	4	4	1
C83	3.0	4	3	3	3	3	2	4	3	2
L6-5	2.3	4	3	3	3	1	1	2	3	1
92717	2.5	4	4	3	4	1	1	1	3	1
Illini	2.8	4	3	3	4	2	2	2	3	2
C-164	2.4	4	3	3	3	2	2	1	3	1
L6-720	2.1	3	3	3	2	1	2	2	2	1
Mandell	2.4	4	3	3	3	1	2	2	3	1
C-7	2.6	4	3	3	3	2	2	2	3	1
Dunfield	2.6	4	3	3	3	2	2	2	3	1
91161	2.9	4	4	4	4	1	2	1	4	2
68474	2.9	4	4	4	4	2	2	1	4	1
88447-2	3.1	4	3	3	4	3	2	3	4	2
Mukden	2.1	4	3	3	2	1	1	1	3	1
70478	2.7	5	3	4	4	1	1	1	4	1
Linman 533	2.7	4	3	4	4	1	2	1	4	1
Wis.Man. 3	2.8	4	5	3	4	1	2	2	4	1
C28	2.3	4	3	3	3	1	1	1	4	1
Richland	1.8	4	2	1	3	1	1	1	2	1
Seneca	2.2	4	3	3	3	1	1	1	3	1
Wis.Man. 606	2.4	4	2	3	4	1	2	1	4	1

Table 6. Summary of maturity notes for the strains in the Uniform Test, Group II, 1941.

Strain	Mean	Dwight Ill.	Urbana Ill.	Lafayette Ind.	Dearborn Mich.	Clayton Ill.	Bluffton Ind.	Stoughton Ill.	Holgate Ohio	London Mills Ill.	Manatah Ind.
L6-685	-2.1	-2	-4	-12	+2	0	-3	+2	0	0	-4
L6-12	-2.3	-2	-2	-14	+1	+2	-3	+2	0	0	-7
L6-700	-3.2	-2	-7	-15	+1	-2	-5	0	0	-1	-1
Cl63	+4.0	0	+6	+3	+5	+2	+4	+4	+3	+8	+5
Mingo	-1.0	-2	0	-4	+5	0	-4	0	-4	0	-1
C-83	+2.7	0	+2	+1	+5	+2	+4	+2	0	+8	+3
L6-5	-3.0	-6	-4	-12	-1	-2	-3	0	0	-2	0
92717	-5.1	-2	-8	-15	-1	-4	-8	-4	-4	-2	-3
Illini	0.0	0	0	0	0	0	0	0	0	0	0
Cl64	+5.9	+10	+6	0	+6	+6	+5	+8	+3	+8	+7
L6-720	-3.5	-3	-6	-14	0	-4	-6	+2	0	-2	-3
Mandell	-1.9	-2	-8	-2	-5	-2	+2	0	-4	-4	+6
C-7	+6.5	+10	+10	-3	+4	+8	+5	+14	+3	+11	+3
Dunfield	-1.3	-6	-4	-1	-7	0	+2	+2	0	0	+1
91161	-5.3	-5	-10	-10	-11	-4	-2	-4	-6	-4	+3
68474	-8.7	-8	-12	-16	-10	-8	-11	-6	-3	-8	-5
88447-2	+5.1	+10	+8	-1	+5	+4	+5	+7	+3	+5	+5
Mukden	-5.3	-7	-6	-12	-4	-4	-7	-4	-4	-4	-1
70478	-6.2	-6	-3	-14	-13	-3	-9	-4	-4	-7	+1
Linman 533	-6.1	-2	-3	-11	-6	-7	-6	-4	-6	-6	-10
Wis.Man. 3	-5.2	-2	-11	-13	+1	-4	-4	-4	-6	-3	-6
C-28	-13.4	-6	-16	-19	-15	-10	-22	-6	-9	-10	-21
Richland	-6.1	-6	-8	-16	-11	-2	-4	-2	-9	-6	+3
Seneca	-7.3	-6	-7	-12	-16	0	-7	-4	-14	-3	-4
Wis.Man. 606	-11.0	-6	-14	-13	-8	-6	-6	-6	-24	-6	-21
Illini Matured		9/30	9/26	10/13	10/10	10/20	10/8	9/18	9/24	9/20	10/23

Table 7. Summary of seed quality notes for the strains in the Uniform Test, Group II, 1941

Strain	Mean	Quality								
		Dwight Ill.	Urbana Ill.	Lafayette Ind.	Clayton Ill.	Bluffton Ind.	Stonington Ill.	London Mills Ill.	Kanawha Iowa	Wanatah Ind.
L6-685	1.8	1	3	2	1	2	1	1	4	2
L6-12	1.8	1	3	2	2	2	1	1	3	2
L6-700	2.0	1	3	2	1	2	1	1	4	3
Cl63	2.4	1	3	3	2	3	1	1	4	4
Mingo	2.9	2	4	3	3	3	1	2	4	4
C83	2.6	1	3	3	2	4	1	1	4	4
L6-5	1.7	1	3	1	1	2	1	1	3	3
92717	2.4	2	3	2	1	4	1	2	3	4
Illini	1.9	1	3	2	2	2	1	1	3	2
Cl64	2.2	1	3	2	2	2	1	1	5	3
L6-720	1.8	1	3	2	1	2	1	1	2	3
Mandell	2.4	1	3	3	2	3	1	2	3	4
C7	2.2	1	2	2	2	3	1	1	5	3
Dunfield	2.4	1	3	3	1	3	1	3	4	3
91161	2.7	2	3	3	2	4	1	2	4	4
68474	2.1	1	2	4	1	3	1	1	3	3
88447-2	2.6	1	3	3	2	3	1	2	4	4
Mukden	2.4	1	4	3	2	3	1	1	3	4
70478	2.2	1	3	3	2	3	1	1	3	3
Linman 533	2.9	1	4	4	3	4	1	3	3	3
Wis.Man.3	3.2	1	4	4	3	4	2	3	4	4
C28	2.7	2	5	3	3	2	2	3	3	2
Richland	2.7	2	4	4	1	4	1	2	2	5
Seneca	1.9	1	2	2	2	2	1	2	2	3
Wis.Man.606	3.1	1	4	3	3	4	2	4	3	4

Table 8. Analysis of variance for yield of seed for Uniform Test, Group II, 1941

	Degrees of Freedom	Mean Square	F Value
Locations	10	6,503.32	724.20**
Replications	26	60.91	6.78**
Varieties	24	304.99	33.96**
Varieties x Locations	240	23.55	2.62**
Error	624	8.98	

**Highly significant

Table 9. Two-year summary of mean agronomic and chemical data for the strains in the Uniform Test, Group II, 1940-41.

Strain	Yield (Bu./A)	Lodg- ing	Height	Matu- rity	Seed Qual- ity	Seed Size	Per- cent Pro- tein	Per- cent Oil	Iodine Number of Oil
L6-12	31.8	2.2	34	-0.3	1.4	14.7	42.9	20.5	134
L6-685	31.1	1.9	34	-0.4	1.5	15.2	42.1	21.0	134
Mingo	27.7	2.8	33	-0.6	2.1	15.8	44.3	19.6	131
PI 92717	27.2	2.0	31	-3.5	1.8	14.0	44.1	19.5	133
Illini	26.8	2.6	35	0.0	1.5	14.3	42.2	19.9	132
Manjell	26.3	2.0	34	-1.0	1.8	14.6	45.8	18.7	132
PI 68474	26.3	2.4	28	-6.9	1.6	14.5	41.4	20.8	130
Junfield	25.4	2.5	32	+0.3	1.7	17.0	41.8	20.4	126
PI 91161	25.3	2.3	30	-4.3	2.2	15.8	41.4	20.6	126
PI 70478	24.1	2.0	27	-5.3	1.7	14.3	40.7	21.1	126
Richland	23.6	1.2	30	-5.0	1.9	16.3	42.4	19.7	125
Wukden	23.3	1.8	34	-4.0	1.8	14.3	45.6	19.1	126
Linman 533	22.9	2.1	30	-4.0	2.4	17.0	44.2	19.8	131
628	22.0	2.1	32	-8.5	2.3	14.3	45.3	19.6	129
Wis. Man. 3	21.6	2.4	33	-3.6	2.5	16.5	44.4	19.4	129
Wis. Man. 606	20.9	1.9	29	-7.0	2.6	15.8	44.4	19.7	130

Table 10. Two-year summary of yield rank for the strains in the Uniform Test, Group II, 1940-41.

Strain	Mean									
	Yield (Bu/A) of 18 tests	Holgate or Van Wert Ohio	Bluff- ton Ind.	Wana- tah Ind.	Lafay- ette Ind.	Mazon or Dwight Ill.	Urbana Ill.	Ston- ington Ill.	Clay- ton Ill.	Kana- wha Iowa
L6-12	31.8	1	2	1	2	1	1	1	2	1
L6-685	31.1	2	1	2	1	2	1	2	1	7
Mingo	27.7	5	4	5	4	9	3	3	3	2
PI 92717	27.2	4	6	8	3	7	4	6	7	4
Illini	26.8	8	3	3	6	3	7	4	9	6
Mandell	26.3	11	5	13	9	4	5	7	5	5
PI 68474	26.3	2	7	4	5	5	10	7	6	11
Dunfield	25.4	12	10	6	14	6	8	5	4	10
PI 91161	25.3	6	9	10	8	7	9	10	10	9
PI 70478	24.1	7	8	7	10	13	11	9	12	16
Richland	23.6	15	11	12	11	12	6	12	8	12
Mukden	23.3	14	12	9	7	10	12	13	14	14
Linman 533	22.9	10	15	14	12	15	14	14	11	2
C28	22.0	16	13	11	13	11	16	15	16	8
Wis. Man. 3	21.6	13	14	16	15	14	15	11	13	13
Wis. Man. 606	20.9	9	16	15	16	16	12	16	15	15
Mean Yield Bu. per Acre	25.4	21.5	23.3	16.2	31.6	28.8	33.5	23.7	27.0	23.3

Table 11. Chemical composition of two improved strains in comparison with commercial varieties at eleven locations, 1941.

Strain	Mean	Dwight Ill.	Urbana Ill.	Lafayette Ind.	Clayton Ill.	Bluffton Ind.	Stoughton Ill.	Holgate Ohio	London Mills Ill.	Kanawha Iowa	Wentworth Ind.	Columbus Ohio
Percent Protein												
L6-685	41.6	40.3	38.9	41.7	40.6	41.8	42.6	41.3	38.7	42.9	44.8	44.4
L6-12	42.1	41.6	40.1	42.4	41.5	42.2	43.3	41.9	40.2	41.1	45.8	43.1
Mingo	43.7	42.1	42.3	45.0	42.2	44.3	44.5	43.0	41.4	43.9	47.4	45.1
Illini	41.6	40.1	40.1	42.1	41.6	42.5	39.4	40.6	39.4	42.6	45.6	43.3
Dunfield	41.2	39.9	39.3	41.5	39.3	41.4	40.4	40.6	41.6	39.4	46.3	43.0
Mean.	42.0	40.8	40.1	42.5	41.0	42.4	42.0	41.5	40.3	42.0	46.0	43.8
Percent Oil												
L6-685	21.5	21.9	22.9	22.2	22.2	20.9	22.2	21.5	22.6	20.6	19.7	20.2
L6-12	21.1	21.4	22.4	21.5	21.4	20.8	21.5	21.3	21.7	20.0	19.7	20.1
Mingo	20.3	20.8	21.0	19.9	21.1	20.1	20.2	21.0	21.1	19.8	18.4	19.6
Illini	20.5	20.8	21.3	20.7	20.6	20.2	21.5	21.2	21.3	19.4	18.8	19.7
Dunfield	21.2	21.9	22.7	21.4	22.7	20.5	22.4	21.3	20.2	20.3	19.4	20.7
Mean	20.9	21.4	22.1	21.1	21.6	20.5	21.6	21.3	21.4	20.0	19.2	20.1
Iodine Number of Oil												
L6-685	132	133	132	133	133	129	133	132	134	135	131	132
L6-12	133	134	133	132	133	130	133	132	133	136	131	133
Mingo	130	132	129	130	131	126	131	128	130	134	127	129
Illini	131	132	130	130	130	129	130	131	131	133	131	133
Dunfield	123	125	121	120	124	118	121	125	121	130	124	125
Mean	130	131	129	129	130	126	130	130	129	134	129	130

Table 12. Three-year summary of yield and yield rank for the strains in the Uniform Test, Group II, 1939-41.

Strain	Mean of 23 tests	Holgate		Mazon		Wana- tah Ind.	or Dwight Ill.	Urbana Ill.	Ston- ington Ill.	London* Mills Ill.	Clayton Ill.	Kanawha Iowa
		or Van Wert Ohio	or Wana- tah Ind.									
Illini	29.8	30.1	21.0	37.7	41.9	28.5	23.8	28.3	25.2			
Mandell	29.6	28.2	19.4	36.7	40.7	29.9	24.0	29.1	27.2			
Dunfield	28.4	27.1	19.8	35.0	38.5	28.5	22.4	30.7	23.6			
PI 91161	28.1	27.1	22.3	35.4	40.0	21.7	24.7	26.7	25.9			
Linman 533	26.6	27.5	20.7	29.9	35.5	21.9	25.1	25.8	25.7			
70478	26.5	24.9	21.8	32.1	37.6	23.8	24.0	24.9	22.3			
Mukden	26.3	25.6	21.0	35.1	34.8	22.2	22.6	25.4	22.5			
Richland	25.9	24.5	19.9	29.4	38.4	21.5	20.0	28.4	23.5			
Mean of 8 strains	27.7	26.9	20.7	33.9	38.4	24.8	23.3	27.4	24.5			
Illini	1	1	3	1	1	2	5	4	4			
Mandell	2	2	8	2	2	1	3	2	1			
Dunfield	3	4	7	5	4	3	7	1	5			
PI 91161	4	5	1	3	3	7	2	5	2			
Linman 533	5	3	5	7	7	6	1	6	3			
PI 70478	6	7	2	6	6	4	4	8	8			
Mukden	7	6	4	4	8	5	6	7	7			
Richland	8	8	6	8	5	8	8	3	6			

***For 1939 and 1941 only.**

UNIFORM TEST, GROUP III

The 16 strains in the 1941 Group III test include six named varieties, two of which have been recently released, and nine selections.

The origin of these strains is as follows:

Strain	Source or Originating Agency	Origin
C2	Purdue Agr. Exp. Sta.	CX231-261-1-1-1 (Dunfield x Midwest)
C79	Purdue Agr. Exp. Sta.	CX331-129-2-2-2 (Illini x Mandell)
Patoka	Purdue Agr. Exp. Sta.	PI 70218-2-19-3
Dunfield	Purdue Agr. Exp. Sta.	PI 36846
L4-432	Ill. Agr. Exp. Sta.	Sel. from mixed hybrid pop.
L4-506	Ill. Agr. Exp. Sta.	Sel. from mixed hybrid pop.
L6-13	Ill. Agr. Exp. Sta.	Sel. from mixed hybrid pop.
L6-23	Ill. Agr. Exp. Sta.	Sel. from mixed hybrid pop.
L6-690	Ill. Agr. Exp. Sta.	Sel. from (Mandarin x Mansoy)
L7-1087	Ill. Agr. Exp. Sta.	Sel. from LX157 (Illini x T48)
L7-1355	Ill. Agr. Exp. Sta.	Rogue in PI 81041
Chief	Ill. Agr. Exp. Sta.	Sel. from (Illini x T95, Manchu Line A)
Illini	Ill. Agr. Exp. Sta.	Selection from A.K.
Scioto	Ohio Agr. Exp. Sta.	Selection from Manchu
Manchuria 13-177	Ohio Agr. Exp. Sta.	Selection from Manchuria
McClave	Charles McClave	Farmer's selection

In general the coefficients of variability for yield were higher in the Group III test than in the Group II test. A summary of the analysis of variance for Group III is given in Table 20.

The variance due to location was not as great as in the Group II test. The varieties x locations interaction is highly significant, although not very great.

The strains C2 and L7-1355 have the highest average yield for 1941, but both of these strains are somewhat late for this test. McClave is

also much later than any other strain in the test but has been a very poor yielder. It will also be noted that the seed of this variety has a very low percentage of oil.

The average data for Group III for the 2-year period, 1940-1941, are presented in Table 22. L7-1355, L6-690, and Manchuria 13-177 have a good yield record in this test, but L7-1355 and Manchuria 13-177 have a low iodine number, and the latter lodges very badly. L6-690 has a relatively high iodine number. L6-23, L4-506, and L4-432 have a definitely lower oil content and will not be continued in the test in 1942. L6-13 and C79 have not been sufficiently outstanding in any particular to warrant their retention.

Table 13. Summary of agronomic and chemical data for the strains in the Uniform Test, Group III, 1941.

Strain	Yield (Bu/A)	Lodg- ing	Height	Matu- rity	Seed Qual- ity	Seed Size	Per- cent Pro- tein	Per- cent oil	Iodine number of oil
C2	27.5	2.8	37	+6.9	2.3	14.3	41.7	20.5	129
L7-1355	25.9	2.2	43	+6.0	2.3	15.2	41.4	21.1	125
L6-690	25.9	2.1	37	+2.0	1.7	12.4	43.4	20.6	134
Patoka	25.8	1.5	30	+6.0	2.5	17.6	43.8	21.3	130
L3-177	25.7	3.0	32	+1.9	1.7	14.3	39.7	21.7	125
L7-1087	25.3	2.0	38	+3.6	1.7	13.0	44.0	20.1	132
L6-23	25.2	1.8	33	+3.6	2.0	13.8	47.0	18.7	131
Scioto	24.8	3.2	33	+2.3	2.4	14.8	41.9	21.4	133
L4-506	24.4	2.5	37	+3.6	2.2	13.3	43.8	20.0	130
L6-13	24.3	1.8	40	+4.2	2.5	14.6	42.4	20.5	129
Chief	24.0	2.3	41	+4.2	2.3	13.0	40.4	21.0	130
L4-432	24.0	1.8	33	+2.7	1.9	13.8	46.6	18.4	131
C79	23.9	1.9	37	+2.7	1.8	14.6	43.4	20.3	130
Illini	21.5	2.0	33	0.0	2.6	13.5	41.5	20.6	130
McClave	21.5	1.9	28	+13.0	2.6	11.2	44.2	18.0	133
Dunfield	20.9	1.8	32	-1.0	2.3	15.8	40.6	21.6	122

Table 14. Summary of yields in bushels for the strains in the Uniform Test, Group III, 1941.

Strain	Mean	Dwight Ill.	Urbana Ill.	Clay-		Ston- ington Ill.	Free- burg Ill.	Fort- ville Ind.	Edge-		Col- umbus Ohio	Col- umbia Mo.	London		North Vernon Ind.	Carroll- ton Mo.
				ton Ill.	ton Ill.				wood Ill.	wood Ill.			Mills Ill.	Mills Ill.		
C2	27.5	47.2	48.6	41.2	27.9	27.9	27.5	25.8	21.2	21.2	19.5	21.6	18.8	18.8	16.9	14.0
I7-1355	25.9	45.9	45.3	32.6	28.4	28.4	26.5	23.0	23.0	23.0	22.0	21.1	20.2	20.2	11.2	11.9
I6-690	25.9	46.5	44.8	33.1	30.2	30.2	24.1	22.6	23.7	23.7	20.2	21.4	19.8	19.8	12.1	12.4
Patoka	25.8	40.1	47.0	34.1	27.2	27.2	27.2	21.6	23.2	23.2	21.9	19.2	19.7	19.7	18.0	9.9
I3-177	25.7	40.1	38.9	37.6	30.3	30.3	26.1	27.0	22.5	22.5	21.5	18.7	15.9	15.9	15.8	14.0
I7-1087	25.3	41.7	45.1	35.0	29.6	29.6	26.2	24.6	21.4	21.4	19.1	21.5	14.1	14.1	12.7	12.4
I6-23	25.2	40.2	49.7	33.8	29.1	29.1	26.6	22.8	23.1	23.1	18.2	19.1	18.9	18.9	10.0	11.2
Scioto	24.8	40.9	35.9	35.9	28.0	28.0	23.8	27.0	18.6	18.6	19.9	18.3	18.9	18.9	16.9	13.9
I4-506	24.4	38.0	41.0	36.6	28.4	28.4	22.5	25.1	20.9	20.9	18.7	18.8	15.7	15.7	14.6	12.9
I6-13	24.3	44.5	40.4	31.3	26.1	26.1	22.4	23.0	17.8	17.8	21.0	16.8	15.7	15.7	14.7	12.3
Chief	24.0	43.8	44.0	32.7	26.9	26.9	19.8	24.2	19.9	19.9	18.7	18.3	13.9	13.9	12.1	14.1
I4-432	24.0	37.2	38.7	34.9	26.7	26.7	25.3	22.5	21.6	21.6	20.2	20.1	18.6	18.6	10.9	11.7
C79	23.9	46.4	38.9	31.5	27.0	27.0	21.8	21.9	18.3	18.3	20.2	17.4	17.1	17.1	14.3	11.7
Illini	21.5	43.3	34.6	27.5	27.2	27.2	14.2	24.0	16.2	16.2	19.3	15.2	13.3	13.3	12.2	11.0
McClave	21.5	35.8	32.7	33.3	22.0	22.0	25.6	18.4	19.9	19.9	18.4	11.5	16.3	16.3	14.5	9.7
Dunfield	20.9	35.1	34.1	31.0	25.7	25.7	20.1	18.1	15.4	15.4	17.8	15.2	11.7	11.7	12.6	13.9
Mean	24.4	41.7	41.2	33.9	27.5	27.5	23.7	23.5	20.4	20.4	19.8	18.4	16.8	16.8	13.7	12.3
Coef. of Var.		9.7	12.2	9.2	8.7	8.7	9.9	14.1	15.8	15.8	14.5	14.4	-	-	12.2	12.4
Bu. Nec. for sig. (5% level)		5.8	7.2	4.5	3.4	3.4	3.3	4.7	4.6	4.6	4.1	3.8	-	-	2.4	2.3

Table 15. Summary of rank for yield, arranged in order of mean yields, for the Uniform Test, Group III, 1941.

Strain	Dwight		Clay-		Ston-		Free-		Fort-		Edge-		Col-		Col-		London		North		Carroll-	
	Ill.	Ill.	Ill.	Ill.	Ill.	Ill.	Ill.	Ill.	Ind.	Ind.	Ill.	Ill.	Ill.	Ill.	Ill.	Ill.	Ill.	Ill.	Ind.	Ind.	ton	Mo.
C2	1	2	1	8	1	4	8	1	4	4	8	8	9	1	6	2	6	2	2	2	2	2
L7-1355	4	4	12	5	4	9	5	4	9	9	4	4	1	4	1	14	1	14	14	10	10	10
L6-690	2	6	10	2	9	11	2	9	11	11	1	1	5	3	2	12	2	12	12	7	7	7
Patoka	11	3	7	9	2	14	9	2	14	14	2	2	2	6	3	1	3	1	1	15	15	15
L3-177	11	10	2	1	6	2	1	6	2	2	5	5	3	9	10	4	10	4	4	2	2	2
L7-1087	8	5	5	3	5	6	3	5	6	6	7	7	11	2	13	9	13	9	7	7	7	7
L6-23	10	1	8	4	3	10	4	3	10	10	3	3	15	7	4	16	4	16	13	13	13	13
Scioto	9	13	4	7	10	2	7	10	2	2	12	12	8	10	4	2	4	2	4	4	4	4
L4-506	13	8	3	5	11	5	5	11	5	5	9	9	12	8	11	6	11	6	6	6	6	6
L6-13	5	9	14	14	12	1	14	12	1	1	14	14	4	13	11	5	11	5	9	9	9	9
Chief	6	7	11	12	15	7	12	15	7	7	10	10	12	10	14	12	14	12	1	1	1	1
L4-432	14	12	6	13	8	12	13	8	12	12	6	6	5	5	7	15	7	15	11	11	11	11
C79	3	10	13	11	13	13	11	13	13	13	13	13	5	12	8	8	8	8	11	11	11	11
Illini	7	14	16	9	16	8	9	16	8	8	15	15	10	14	15	11	15	11	14	14	14	14
McClave	15	16	9	16	7	15	16	7	15	15	10	10	14	16	9	7	9	7	16	16	16	16
Dunfield	16	15	15	15	14	16	15	14	16	16	16	16	16	14	16	10	16	10	4	4	4	4

Table 16. Summary of plant height for the strains in the Uniform Test, Group III, 1941.

Strain	Mean	Fortville Indiana	Columbus Ohio	Columbia Missouri	Carrollton Missouri
C2	37	33	30	38	46
L7-1355	43	38	35	44	54
L6-690	37	29	26	39	54
Patoka	30	27	25	31	36
13-177	32	30	26	32	40
L7-1087	38	37	28	39	48
L6-23	33	28	27	36	40
Scioto	33	32	26	32	40
L4-506	37	29	26	39	52
L6-13	40	36	30	38	54
Chief	41	40	28	41	56
L4-432	33	33	25	34	40
C79	37	34	29	37	46
Illini	33	29	25	32	44
McClave	26	29	28	16	31
Dunfield	32	34	22	33	38

Table 17. Summary of lodging notes for the strains in the Uniform Test, Group III, 1941.

Strain	Mean	Clayton		Stonington		Edgewood		Columbus		Columbia		Carrolltown	
		Ill.	Ill.	Ill.	Ill.	Ill.	Ill.	Ohio	Mo.	Mo.	Mo.	Mo.	Mo.
C2	2.8	3	3	3	3	3	3	3	2	2	3	3	3
L7-1355	2.2	2	2	2	2	2	2	2	2	2	3	3	3
L6-690	2.1	3	3	3	3	1	1	2	2	2	2	2	2
Patoka	1.5	2	2	2	2	1	1	1	2	2	2	2	2
L3-177	3.0	3	3	3	3	3	3	2	3	3	4	4	4
L7-1087	2.0	2	2	2	2	1	1	2	2	2	2	2	2
L6-23	1.8	2	2	2	2	1	1	1	2	2	3	3	3
Scioto	3.2	3	3	3	3	2	2	5	3	3	3	3	3
L4-506	2.5	3	3	3	3	2	2	2	2	2	3	3	3
L6-13	1.8	2	2	2	2	2	2	1	2	2	2	2	2
Chief	2.3	3	3	3	3	1	1	2	2	2	3	3	3
L4-432	1.8	2	2	2	2	2	2	1	2	2	2	2	2
C79	1.9	3	3	2	2	1	1	1	2	2	2	2	2
Illini	2.0	2	2	3	3	1	1	1	2	2	3	3	3
McClave	1.9	1	1	3	3	3	3	2	1	1	2	2	2
Dunfield	1.8	2	2	2	2	1	1	1	2	2	3	3	3

Table 18. Summary of maturity notes for the strains in the Uniform Test, Group III, 1941.

Strain	Mean	Clay- ton Ill.	Ston- ington Ill.	Fort- ville Ind.	Edge- wood Ill.	Col- umbus Ohio	Col- umbia* Mo.	London Mills Ill.	North Vernon Ind.	Carroll- ton Mo.
C2	+6.9	+14	+7	0	+7	+7	+5	+14	+3	+5
L7-1355	+6.0	+10	+5	+1	+7	+7	+2	+8	+8	+6
L6-690	+2.0	+3	0	-6	+6	+4	0	+8	0	+3
Patoka	+6.0	+8	+7	+2	+8	+9	+5	+12	-1	+4
L3-177	+1.9	+4	-1	-7	+4	+3	0	+9	+3	+2
L7-1087	+3.6	+5	+3	-3	+6	+5	+1	+8	+5	+2
L6-23	+3.6	+3	+3	-4	+4	+7	+2	+8	+6	+3
Scioto	+2.3	+3	+3	-3	+6	+6	-2	+3	-1	+1
L4-506	+3.6	+3	+2	-5	+6	+5	+2	+8	+4	+2
L6-13	+4.2	+3	+2	-1	+6	+5	+3	+9	+3	+3
Chief	+4.2	+9	+5	-5	+8	+6	+2	+8	+2	+3
L4-432	+2.7	+4	-2	-4	+4	+4	+1	+8	+7	+2
C79	+2.7	+9	+3	-3	+4	+3	+1	+8	-2	+1
Illini	0	0	0	0	0	0	0	0	0	0
McClave	+13.0	+16	+13	+3	+14	+4	+17	+20	+7	+21
Dunfield	-1.0	0	-1	0	+3	-2	0	0	-8	-1

Illini or

Dunfield matured 9/20 9/23 10/12 9/14 9/26 9/10 9/20 10/9 9/16

* Dunfield used as reference variety for maturity.

Table 19. Summary of seed quality notes for the strains in the Uniform Test, Group III, 1941.

Strain	Mean	Dwight Ill.	Urbana Ill.	Clayton Ill.	Stonington Ill.	Freeburg Ill.	Fortville Ind.	Edgewood Ill.	Columbia Mo.	London Mills Ill.	North Vernon Ind.	Carrollton Mo.
C2	2.3	1	3	2	1	2	4	2	2	1	4	3
L7-1355	2.3	1	2	2	2	3	4	2	1	1	4	3
L6-690	1.7	1	2	2	1	2	2	2	1	1	3	2
Patoka	2.5	1	3	2	2	3	3	3	3	1	3	3
L3-177	1.7	1	2	1	1	1	3	2	2	1	3	2
L7-1087	1.7	1	1	1	1	3	2	3	1	1	3	2
L6-23	2.0	1	1	1	1	2	4	2	2	1	3	4
Scioto	2.4	1	3	2	2	3	3	3	2	2	4	2
L4-506	2.2	1	2	1	1	3	3	4	2	2	3	3
L6-13	2.5	1	2	2	1	3	4	4	1	2	4	3
Chief	2.3	1	2	2	1	3	3	3	2	2	4	3
L4-432	1.9	1	2	1	1	1	3	3	1	1	3	4
C79	1.8	1	1	1	1	3	3	2	1	2	3	2
Illini	2.6	1	2	2	1	4	4	4	2	2	4	3
McClave	2.6	1	3	1	1	2	4	3	3	3	4	4
Dunfield	2.3	1	1	2	2	3	4	2	3	2	4	2

Table 20. Analysis of variance for yield of seed for Uniform Test, Group III, 1941

	Degrees of Freedom	Mean Square	F Value
Location	11	6,254.77	553.03**
Replications	36	896.97	79.31**
Varieties	15	156.89	13.87**
Varieties x Locations	165	24.97	2.21**
Error	540	11.31	

**Highly significant

Table 21. Two-year summary of mean agronomic and chemical data for the strains in the Uniform Test, Group III, 1940-41.

Strain	Yield (Bu/A)	Lodg- ing	Height	Matu- rity	Seed Qual- ity	Seed Size	Per- cent Pro- tein	Per- cent Oil	Iodine number of oil
L7-1335	26.2	1.9	38	+5.2	1.8	15.2	41.3	20.7	126
L6-690	26.2	2.1	32	+3.0	1.5	12.4	43.2	20.4	134
Man.13-177	26.1	2.6	29	+1.8	1.6	14.3	40.2	21.2	126
C2	25.9	2.5	33	+6.8	1.8	14.3	42.2	20.1	129
L6-23	25.0	1.7	30	+4.2	1.8	13.8	46.8	18.6	132
Patoka	24.9	1.3	29	+6.6	2.0	17.6	43.8	20.8	129
L4-506	24.8	2.2	32	+3.5	1.9	13.3	43.8	19.7	131
Scioto	24.6	3.1	29	+2.2	2.0	14.8	42.4	21.0	133
I4-432	24.6	1.6	30	+3.2	1.7	13.8	46.9	18.3	132
Chief	24.4	2.2	35	+3.5	1.7	13.0	40.9	20.7	131
L6-13	23.8	1.8	34	+4.4	2.2	14.6	42.7	20.2	129
C79	23.6	1.8	34	+3.3	1.7	14.6	43.6	20.1	130
Illini	22.0	1.7	29	0.0	2.0	13.5	41.9	20.4	130
Dunfield	21.1	1.7	29	-1.5	1.8	15.8	40.9	21.2	125

Table 22. Two-year summary of yield rank for the strains in the Uniform Test, Group III, 1940-41

Strains	Mean Yield (Bu/A) ¹	Yield Rank							
		Columbus Ohio	N. Vernon Ind.	Urban Ill.	Dwight and Hazen Ill.	Edge-wood Ill.	Stonington Ill.	London Mills Ill.	Clayton Ill.
L7-1355	26.2	1	6	3	2	3	3	1	7
L6-690	26.2	10	11	2	3	2	1	2	3
Man. 13-177	26.1	2	1	9	5	1	2	8	4
C2	25.9	11	4	4	1	5	11	7	1
L6-23	25.0	13	13	1	10	4	9	6	5
Patoka	24.9	5	3	5	12	6	8	4	11
L4-506	24.8	9	5	6	11	10	4	9	2
Scioto	24.6	12	2	11	9	9	6	3	8
L4-432	24.6	6	11	8	13	7	13	5	6
Chief	24.4	7	9	7	4	7	5	12	10
L6-13	23.8	3	9	10	8	11	12	11	8
C79	23.6	4	7	12	6	12	6	10	13
Illini	22.0	7	8	13	7	14	10	13	14
Dunfield	21.1	14	14	14	14	13	13	14	12
Mean yield Bu. per Acre	24.5	19.9	19.4	37.6	32.3	18.8	26.4	13.9	31.6
									20.8

¹ Mean of 18 tests

UNIFORM TEST, GROUP IV

The origin of the strains in the Group IV test in 1941 is as follows:

Strain	Source or Originating Agency	Origin
C6	Purdue Agr. Exp. Sta.	CX331-200-1-2-1 (Illini x Mandell)
C146	Purdue Agr. Exp. Sta.	CX231-14-1-3-1-7-1 (Dunfield x Midwest)
C148	Purdue Agr. Exp. Sta.	CX231-55-1-10-1-25 (Dunfield x Midwest)
C149	Purdue Agr. Exp. Sta.	CX231-108-2-8-1-5-1 (Dunfield x Midwest)
C153	Purdue Agr. Exp. Sta.	CX231-298-1-1-1-1-9 (Dunfield x Midwest)
C154	Purdue Agr. Exp. Sta.	CX231-376-1-2-2-6-4 (Dunfield x Midwest)
C155	Purdue Agr. Exp. Sta.	CX231-393-1-2-1-4-9 (Dunfield x Midwest)
C156	Purdue Agr. Exp. Sta.	CX331-51-14-1-7-4 (Illini x Mandell)
C160	Purdue Agr. Exp. Sta.	CX331-136-1-1-1 (Illini x Mandell)
C167	Purdue Agr. Exp. Sta.	CX531-265-1-5-5 (Midwest x Dunfield)
C169	Purdue Agr. Exp. Sta.	CX531-265-2-1-1-8 (Midwest x Dunfield)
C171	Purdue Agr. Exp. Sta.	CX531-468-3-3-2 (Midwest x Dunfield)
C175	Purdue Agr. Exp. Sta.	CX731-268-1-5-2-9 (Dunfield x Man. Sel. 31)
C178	Purdue Agr. Exp. Sta.	CX831-88-3-1-3-3 (Dunfield x Man. Sel. 21)
C180	Purdue Agr. Exp. Sta.	CX831-151-2-5-2-5 (Dunfield x Man. Sel. 21)
C183	Purdue Agr. Exp. Sta.	CX831-362-1-3-1-6-5 (Dunfield x Man. Sel. 21)
Patoka	Purdue Agr. Exp. Sta.	PI 70218-2-19-3
Boone	Mo. Agr. Exp. Sta.	PI 54563-3
L7-923	Ill. Agr. Exp. Sta.	Selection from mixed hybrid population
L7-1160	Ill. Agr. Exp. Sta.	LX157 (Illini x T48 (T48 is from Manchu x Ebony)
L7-1355	Ill. Agr. Exp. Sta.	Rogue in PI 81041
Chief	Ill. Agr. Exp. Sta.	Illini x Manchu
Macoupin	Elmer Hulcher	Selection from commercial lot
Morse	U.S. Dept. of Agriculture	PI 19186

A number of strains of hybrid origin were higher yielding than the named varieties in the 1941 tests. Most of these are from the cross, Dunfield x Midwest or its reciprocal.

A summary of the combined analysis of variance for this test in 1941 is given in Table 30. The varieties x locations interaction, while not large, is highly significant.

The four strains ranking highest for yield in the 2-year summary, Tables 31 and 32, are all selections from the cross, Dunfield x Midwest. None of the strains in this test are outstanding in chemical composition, but all are satisfactory.

Among the strains in this test are the two varieties, Gibson and Patoka, recently released by the Purdue Experiment Station, and Boone (PI 54563-3) recently named by the Missouri Experiment Station. These three varieties have been in the Uniform Tests for three years and their relative performance may be noted in Table 33, a summary of three years.

The results of this uniform testing work and of other testing work incidental to the breeding program have made it possible to evaluate the available material in regard to its possible use in future breeding work. A brief summary of some of the superior germ plasm available in maturity groups covered by these tests is as follows:

Yield	Lodging Resistance	Percent Oil	Iodine No.
Dunfield	Patoka	Dunfield	
Midwest	Richland	Illini	
Illini	L6-685	Scioto	
Patoka	T48	T117	
Gibson	L7-1111	Man.13-177	
C171		L6-685	
L7-1355		PI 68474	Wild soybean
Man.13-177		PI 70478	Scioto
Scioto		PI 91161	Peking
L6-685			6-685
L6-12			6-12
			6-690
			PI 92717

No attempt has been made to arrange these strains in the order of their relative value.

Table 23. Summary of agronomic and chemical data for the strains in the Uniform Test,
Group IV, 1941

Strain	Yield (Bu/A)	Lodg- ing	Height	Matu- rity ¹	Seed Qual- ity	Seed Size	Per- cent Pro- tein	Per- cent Oil	Iodine number of oil
C146	25.2	2.2	36	+1	2.6	14.8	41.6	21.0	125
L7-923	24.6	2.9	41	0	2.2	12.5	41.0	21.0	130
C155	24.2	2.3	40	0	2.7	16.0	43.4	20.4	126
C178	24.1	2.1	35	+1	2.9	14.8	43.8	19.6	132
C153	23.9	2.8	36	0	2.2	15.2	43.8	20.9	126
C167	23.7	2.7	35	0	2.1	14.4	40.8	21.0	132
C180	23.4	2.3	34	-1	2.4	15.6	41.6	20.7	123
C149	23.4	2.4	36	-1	2.3	14.1	43.6	21.1	127
C171	23.4	2.9	35	-1	2.6	14.8	41.8	21.3	128
Gibson	22.9	2.7	33	0	2.4	13.7	41.6	20.7	131
Patoka	22.8	1.4	29	-3	3.3	17.2	44.4	20.8	130
C6	22.6	2.4	38	-2	2.8	13.9	45.0	19.5	129
C175	22.4	2.5	38	-3	2.8	14.9	42.6	20.7	127
L7-1355	22.3	2.5	40	-2	3.1	14.5	41.6	21.4	125
C160	21.6	2.1	34	-1	2.3	15.6	43.3	20.5	129
C156	21.2	2.4	35	-2	2.4	15.8	43.6	19.6	129
C154	21.1	2.0	33	-3	2.7	14.0	41.0	21.1	128
C183	21.0	2.4	35	-3	2.9	14.8	41.9	20.2	130
C148	20.9	2.2	35	-2	2.8	14.0	42.1	20.8	124
L7-1160	20.9	2.4	40	0	3.0	14.4	42.8	20.6	129
Boone	20.7	2.8	36	+1	2.5	14.1	42.9	20.9	128
Morse	20.4	3.2	37	-2	3.1	17.9	42.1	20.7	130
Macoupin	20.2	2.5	37	-1	2.8	15.2	42.7	21.5	127
Chief	19.9	2.2	40	-2	3.2	13.0	41.4	21.0	130

¹Days earlier or later than Gibson.

Table 24. Summary of yields in bushels for the strains in the Uniform Test, Group IV, 1941

Strain	Yield in Bushels per acre											
	Urbana		Evans-		Clay-		Ston-		Free-		Edge-	
	Mean	Ill.	Ind.	ville	ton	Ill.	Ill.	Ill.	burg	Ill.	wood	Column-
												bia
												Mo.
												Ind.
												ton
												Mo.
												ton
												Mo.
												Ind.
												Ind.
Q146	25.2	46.1	35.7	35.5	26.9	30.0	23.8	25.3	15.0	18.1	11.2	10.0
L7-923	24.6	45.7	41.0	33.3	28.1	26.3	22.8	21.9	15.0	15.3	12.4	8.6
C155	24.2	41.9	37.7	33.1	26.9	24.6	24.6	23.4	13.7	13.0	12.0	8.9
C178	24.1	41.6	39.1	31.0	25.1	26.0	23.9	24.1	14.8	18.1	11.5	9.8
C153	23.9	39.7	39.7	35.7	26.2	24.5	23.7	22.5	15.4	16.7	9.9	9.0
C167	23.7	39.9	41.4	31.9	26.9	26.1	26.9	23.8	14.2	13.8	9.4	6.8
C180	23.4	39.6	38.8	33.0	27.8	26.8	22.5	22.0	15.2	14.3	10.5	7.3
C149	23.4	38.9	36.9	34.2	26.1	27.8	24.3	22.7	13.0	13.8	13.3	6.7
C171	23.4	43.7	37.3	35.1	25.6	25.7	25.4	24.3	13.0	11.6	10.2	5.4
Gibson	22.9	40.0	38.6	28.7	26.5	21.7	27.0	21.0	12.0	15.5	12.3	8.6
Patoka	22.8	41.9	39.1	30.8	28.6	28.6	21.1	17.6	14.7	12.3	9.0	7.0
C6	22.6	42.3	37.3	33.7	26.4	23.6	22.2	21.1	13.0	13.7	10.2	5.6
C175	22.4	42.4	32.2	35.0	26.5	23.8	23.5	22.5	12.6	12.0	11.3	4.3
L7-1355	22.3	47.3	34.3	30.5	26.9	23.9	21.2	21.6	10.8	10.9	12.8	5.1
C160	21.6	42.3	35.0	29.3	23.8	25.2	22.3	17.6	11.9	12.5	9.2	8.3
C156	21.2	38.8	36.1	26.9	23.9	23.4	22.4	19.5	14.3	10.2	12.1	5.7
C154	21.1	41.6	32.2	29.2	25.9	26.3	24.0	18.0	10.6	8.2	10.3	5.5
C133	21.0	41.4	31.5	30.6	26.9	22.7	20.7	19.6	11.2	10.6	10.9	4.8
C148	20.9	40.0	35.4	28.2	24.2	24.3	21.1	21.6	11.2	7.9	11.5	5.0
L7-1160	20.9	40.2	30.4	32.9	25.0	18.3	23.1	18.3	10.4	15.2	11.3	4.9
Stone	20.7	34.6	33.2	30.1	22.1	19.5	20.5	21.1	14.4	13.7	12.1	8.0
Morse	20.4	34.6	28.3	29.9	22.9	22.1	23.3	19.1	12.7	10.3	15.2	6.3
Maize	20.2	36.8	26.2	30.0	25.3	22.1	20.2	19.0	12.0	11.0	14.0	6.0
Chief	19.9	36.7	35.1	27.8	24.2	17.4	21.6	19.5	11.8	7.1	13.3	4.0
Mean	22.4	40.7	35.5	31.5	25.8	24.2	23.0	21.2	13.0	12.8	11.6	6.8
Coef. of Var. (%)		11.1	7.2	9.9	7.7	--	12.2	11.4	15.0	13.2	22.4	26.3
Bu. Acc for sig. (5%)		6.4	3.6	4.4	2.8	--	4.0	3.4	2.8	2.4	3.7	2.5

Table 25. Summary of rank for yield, arranged in order of mean yields for the Uniform Test, Group IV, 1941

Strain	Urban- ville Ill.	Evans- ville Ind.	Clay- ton Ill.	Ston- ington Ill.	Free- burg Ill.	Edge- wood Ill.	Colum- bia Mo.	Wheat- land. Ind.	Sikes- ton Mo.	Carroll- ton Mo.	Mt. Vernon Ind.
CL46	2	13	2	4	1	8	2	3	1	15	1
L7-923	3	2	7	2	5	13	10	3	5	7	5
CL55	8	8	8	4	11	4	1	10	7	2	4
CL78	10	4	12	17	8	7	4	5	1	11	2
CL53	17	3	1	12	12	9	7	1	3	21	3
CL67	16	1	11	4	7	2	5	9	9	22	11
CL80	18	6	9	3	4	14	9	2	8	17	9
CL49	19	11	5	13	3	5	6	11	10	4	12
CL71	4	9	3	15	9	3	3	11	16	19	18
Gibson	14	7	21	9	21	1	15	16	4	8	5
Patoka	8	4	13	1	2	20	23	6	14	24	10
C6	6	9	6	11	16	17	13	11	11	19	16
CL75	5	19	4	9	15	10	7	15	15	13	23
L7-1355	1	17	15	4	14	19	11	22	18	6	19
CL60	6	16	19	22	10	16	23	18	13	23	7
CL56	20	12	24	21	17	15	17	8	21	9	15
CL54	10	19	20	14	5	6	22	23	22	18	17
CL83	12	21	24	4	18	22	16	20	19	16	22
CL48	14	14	22	19	13	20	11	20	23	11	20
L7-1160	13	22	10	18	23	12	21	24	6	13	21
Boone	24	18	16	24	22	23	13	7	11	9	8
Morse	23	23	18	23	19	11	19	14	20	1	13
Macoupin	21	24	17	16	19	24	20	16	17	2	14
Chief	22	15	23	19	24	18	17	19	24	4	24

Table 26. Summary of plant height for the strains in the Uniform Test, Group IV, 1941

Strain	Height (in inches)									
	Mean	Evansville	Columbia	Wheatland	Sikeston	Carrollton	Mt. Vernon			
	Ind.	Mo.	Ind.	Mo.	Ind.	Mo.	Ind.			
C146	36	45	41	28	33	45	21			
L7-923	41	56	45	27	44	54	22			
C155	40	52	48	30	35	49	23			
C178	35	51	39	25	36	43	18			
C153	36	46	40	28	36	42	22			
C167	33	46	38	25	32	37	17			
C180	34	48	38	25	33	41	18			
C149	36	48	38	27	36	43	25			
C171	35	46	37	26	40	42	16			
Gibson	33	47	36	24	35	37	20			
Patoka	29	42	31	22	28	33	16			
C6	38	51	44	27	39	48	18			
C175	38	53	41	31	33	47	21			
L7-1355	40	59	45	25	40	47	26			
C160	34	47	33	26	36	41	18			
C156	35	52	37	26	35	40	17			
C154	33	46	38	26	34	38	14			
C183	35	48	37	27	38	38	19			
C148	35	46	38	26	32	43	24			
L7-1160	40	54	44	28	40	52	19			
Boone	36	54	39	27	36	45	19			
Morse	37	56	40	27	35	43	19			
Macoupin	37	48	41	27	38	46	21			
Chief	40	52	44	27	43	50	23			

Table 27. Summary of lodging notes for the strains in the Uniform Test,
Group IV, 1941

Strain	Mean	Lodging							
		Evansville Ind.	Clayton Ill.	Stonington Ill.	Edgewood Ill.	Columbia Mo.	Sikeston Mo.	Carrollton Mo.	
Cl46	2.3	2	3	2	2	3	2	2	
L7-923	2.9	3	3	3	4	3	2	2	
Cl55	2.3	2	2	2	3	3	2	2	
Cl78	2.1	2	2	2	3	3	1	2	
Cl53	2.9	3	3	3	3	3	2	3	
Cl67	2.7	3	3	3	3	3	2	2	
Cl80	2.3	3	2	2	2	2	2	3	
Cl49	2.6	3	2	3	3	3	2	2	
Cl71	2.9	2	3	3	3	3	3	3	
Gibson	2.7	3	2	3	3	3	2	3	
Patoka	1.4	2	2	1	1	2	1	1	
C6	2.4	3	3	2	2	3	2	2	
Cl75	2.6	3	2	3	3	3	2	2	
L7-1355	2.6	3	3	3	2	2	2	3	
Cl60	2.1	2	2	2	2	3	1	3	
Cl56	2.4	3	2	2	2	3	3	2	
Cl54	2.1	2	2	2	3	3	2	1	
Cl83	2.6	3	2	3	3	3	2	2	
Cl48	2.3	2	2	2	2	3	3	2	
L7-1160	2.4	3	3	2	3	3	2	1	
Boone	2.9	3	3	3	3	3	2	3	
Morse	3.3	3	3	4	4	3	3	3	
Macoupin	2.6	3	2	2	3	3	2	3	
Chief	2.3	3	3	3	1	3	2	1	

Table 26. Summary of maturity notes for the strains in the Uniform Test, Group IV, 1941

Strain	Mean	Maturity (days earlier or later than Cl69)									
		Evans-ville Ind.	Clay-ton Ill.	Edge-wood Ill.	Colum-bia Mo.	Wheat-land Ind.	Sikes-ton Mo.	Carroll-ton Mo.	Mt. Vernon Ind.		
Cl46	+1	+1	+2	+3	+2	+1	0	+2	0		
L7-923	0	-3	+2	+1	+1	-4	+1	+4	-1		
Cl55	0	-3	0	+1	+2	-2	+2	+1	0		
Cl78	+1	-3	+2	+3	+4	-3	+2	+1	-2		
Cl53	0	-2	+2	+1	0	-1	-1	+1	-1		
Cl67	0	-4	+2	+3	0	-1	-1	0	-1		
Cl80	-1	-4	+1	-1	+1	-3	+1	0	-3		
Cl49	-1	-3	0	0	0	0	-6	-2	0		
Cl71	-1	-3	+2	0	-2	0	-2	0	-1		
Gibson	0	0	0	0	0	0	0	0	0		
Patoka	-3	-5	-4	0	-3	-2	+1	-5	-2		
C6	-2	-6	0	-3	-1	+2	-4	-3	-2		
Cl75	-3	-6	0	-1	-2	-7	-2	-6	-1		
L7-1355	-2	-3	-3	-4	-4	-1	-2	-2	+2		
Cl60	-1	-4	0	-3	-2	-1	-2	+1	+2		
Cl56	-2	-4	-2	-2	-3	-1	-2	+1	-1		
Cl54	-3	-7	-4	-4	-2	-2	-5	-6	0		
Cl83	-3	-6	-4	+1	-3	-2	-1	-7	+1		
Cl48	-2	-4	-2	-1	-2	+1	-2	-3	-1		
L7-1160	0	-5	+2	+1	-2	+3	-2	0	0		
Boone	+1	-2	+2	+3	+1	0	+3	+3	+1		
Morse	-2	-8	0	+1	-2	-5	+1	+2	-1		
Macoupin	-1	-5	-1	-1	-2	-1	+1	+2	+1		
Chief	-2	-4	-3	-3	-2	+4	-4	-2	-2		
Gibson matured		10/4	10/2	9/25	9/18	10/9	9/8	9/26	9/29		

Table 29. Summary of seed quality notes for the strains in the Uniform Test, Group IV, 1941

Strain	Seed Quality											
	Mean	Ur- bana Ill.	Evans- ville Ind.	Clay- ton Ill.	Ston- ing- ton Ill.	Free- burg Ill.	Edge- wood Ill.	Col- umbia Mo.	Wheat- land Ind.	Sikes- ton Mo.	Car- roll- ton Mo.	Mt. Vernon Ind.
C146	2.6	3	3	1	1	2	2	1	4	4	4	4
L7-923	2.3	2	2	2	1	2	2	2	3	3	3	3
C155	2.7	3	3	1	1	4	3	1	4	4	3	4
C178	3.0	3	3	2	2	3	3	2	3	4	4	4
C153	2.3	2	2	1	1	2	2	1	3	4	4	3
C167	2.1	3	1	1	1	2	2	1	3	3	4	2
C180	2.5	2	3	1	1	2	2	2	3	4	3	4
C149	2.4	3	2	1	1	2	2	1	4	3	3	4
C171	2.6	2	2	2	1	2	3	2	3	4	4	4
Gibson	2.4	2	2	1	1	3	2	2	3	4	3	3
Patoka	3.3	3	3	2	2	3	4	2	5	4	4	4
C6	2.8	2	3	1	1	2	3	2	4	4	4	5
C175	2.8	2	2	1	1	3	2	2	5	4	4	5
L7-1355	3.1	2	3	2	2	4	3	2	4	4	3	5
C160	2.3	2	2	1	1	2	2	1	4	3	4	4
C156	2.4	2	2	1	1	2	3	2	3	3	3	4
C154	2.7	3	1	1	1	3	3	1	4	4	4	5
C183	2.9	3	1	2	1	3	4	1	5	4	4	4
C148	2.8	3	3	1	1	3	3	1	4	5	3	4
L7-1160	3.0	3	3	2	1	3	3	2	4	4	3	5
Boone	2.5	2	2	1	1	2	3	1	3	4	4	4
Morse	3.1	3	3	1	2	3	3	2	4	5	4	5
Macoupin	2.9	2	2	1	2	3	3	2	5	4	4	4
Chief	3.4	2	3	2	2	4	4	2	5	4	4	5

Table 30. Analysis of variance for yield of seed for Uniform Test, Group IV, 1941

	Degree of Freedom	Mean Square	F Value
Location	9	12,196.12	1,663.86**
Replications	30	51.01	6.96**
Varieties	23	89.07	12.15**
Varieties x Locations	207	17.88	2.44**
Error	690	7.33	

**Highly significant

Table 31. Two-year summary of mean agronomic and chemical data for the strains in the Uniform Test, Group IV, 1940-41.

Strain	Yield (Bu/A)	Lodg- ing	Height	Matu- rity ¹	Seed Qual- ity	Seed Size	Per- cent Pro- tein	Per- cent Oil	Iodine number of oil
Cl71	24.7	2.7	35	-1.3	2.0	14.8	41.3	21.1	128
Cl49	24.3	2.5	37	-0.5	1.9	14.1	42.5	21.0	128
Gibson	24.1	2.6	34	0.0	2.2	13.7	40.6	20.8	131
Cl67	24.1	2.5	34	-0.2	2.0	14.4	39.6	20.9	131
Cl80	23.2	2.5	34	-1.1	2.1	15.6	40.6	20.6	125
Patoka	23.1	1.6	29	-2.9	2.6	17.2	43.9	20.8	129
Cl78	23.0	2.4	36	+1.0	2.6	14.8	42.9	19.9	132
L7-1355	23.0	2.2	43	-1.9	2.5	14.5	41.0	20.9	126
Chief	22.3	2.5	41	-2.3	2.5	13.0	41.2	21.0	130
Cl56	22.1	2.7	36	-1.4	2.2	15.8	42.7	19.5	130
Boone	21.4	2.7	37	+1.7	2.3	14.1	41.4	21.2	129
Cl83	21.0	2.5	36	-3.0	2.5	14.8	41.4	20.2	130
Macoupin	20.9	2.5	38	+0.2	2.4	15.2	40.9	21.5	128

¹Days earlier or later than Gibson.

Table 32. Two-year summary of yield rank for the strains in the Uniform Test, Group IV,
1940-41

Strain	Mean Yield Bu/A	Yield Rank							
		Evans- ville Ind.	Mt. Vernon Ind.	Ur- bana Ill.	Edge- wood Ill.	Ston- ington Ill.	Clay- ton Ill.	Colum- bia Mo.	Sikeston Mo.
Cl171	24.7	5	8	2	2	4	1	1	10
Cl149	24.3	4	4	4	8	4	2	1	4
Gibson	24.1	2	2	3	1	8	11	8	1
Cl167	24.1	1	4	6	3	10	3	3	7
Cl180	23.2	6	7	8	10	6	5	7	3
Patoka	23.1	7	6	4	11	2	4	13	5
Cl178	23.0	3	1	12	5	12	13	4	2
L7-1355	23.0	11	10	1	7	1	12	5	9
Chief	22.3	10	11	6	3	3	6	12	11
Cl156	22.1	8	9	9	8	10	9	9	7
Boone	21.4	9	3	13	13	13	10	5	6
Cl183	21.0	12	13	10	12	7	7	10	13
Macoupon	20.9	13	11	11	6	9	7	10	12
Mean yield Bu/A	22.9	31.0	6.1	36.3	19.6	24.5	28.5	22.1	15.1

Table 33. Three-year summary of yield and yield rank for the strains in the Uniform Test, Group IV, 1939-41

Mean of 30 tests	Evansville Ind.	Wheatland Ind.	Mt. Vernon Ind.	Urbana Ill.	Edge-wood		Clayton Ill.	Freeburg Ill.	Elsberry Mo.		Columbia Mo.	Sikes Mo.
					Ill.	Ind.						
26.2	35.7	21.8	10.6	43.4	22.4	30.0	32.4	30.2	21.6	23.1	16.0	
25.8	38.7	21.5	9.8	39.4	21.8	28.8	30.9	29.6	21.6	22.8	17.3	
25.3	33.9	19.1	10.5	43.4	20.8	29.4	28.9	28.9	23.9	20.6	17.5	
25.0	34.5	24.2	10.2	38.8	19.3	29.8	29.9	30.4	21.7	25.9	17.6	
24.5	36.6	20.4	10.1	38.3	22.2	27.2	27.5	25.2	20.9	20.2	19.1	
22.9	32.5	21.3	12.3	54.3	18.9	23.5	26.8	25.6	18.9	20.8	17.0	

Yield Bu/A	Yield Rank	
	Ill.	Ind.
1	1	1
3	3	4
4	4	3
5	5	2
6	6	5
6	6	6

Cl171	3	2	2	1	1	1	1	2	3	3	6
Cl167	1	3	6	3	3	4	2	3	3	2	5
7-1355	5	6	3	1	4	3	4	4	1	5	3
Patoka	4	1	4	4	5	2	3	1	2	1	2
Gibson	2	5	5	5	2	5	5	5	5	6	1
PI54563-3	6	4	1	6	6	6	6	6	6	4	4

¹Average of two years only.

Table 34. Chemical composition of soybean seed grown at each of the uniform nursery locations, 1940-41 (composite of all strains in each specified group)

	1940			1941		
	Percent Protein	Percent Oil	Iodine Number of Oil	Percent Protein	Percent Oil	Iodine Number of Oil
Group II (composite of 25 strains)						
Holgate, Ohio	43.1	19.6	133	41.9	20.5	129
Bluffton, Ind.	45.9	18.2	129	43.0	19.5	125
Lafayette, Ind.	45.9	18.9	131	43.9	19.9	128
Wanatah, Ind.	47.3	17.3	134	46.8	18.1	126
Urbana, Ill.	43.1	20.5	128	41.0	21.2	129
Dwight, Ill.	-	-	-	41.6	20.4	131
Mazon, Ill.	47.6	17.3	131	-	-	-
Stonington, Ill.	42.8	21.0	130	43.6	20.2	129
London Mills, Ill.	-	-	-	41.4	20.5	129
Clayton, Ill.	44.3	20.2	128	41.5	21.2	128
Kanawha, Iowa	43.4	19.3	130	44.1	19.2	132
Group III (composite of 16 strains)						
Columbus, Ohio	44.3	18.2	133	45.3	19.0	131
N. Vernon, Ind.	41.9	20.4	132	46.4	19.1	128
Fortville, Ind.	-	-	-	42.2	20.3	129
Urbana, Ill.	43.5	19.8	130	41.6	21.0	131
Dwight, Ill.	-	-	-	43.1	21.0	132
Mazon, Ill.	45.1	18.2	132	-	-	-
Edgewood, Ill.	43.6	20.2	128	41.4	21.6	127
Stonington, Ill.	40.9	20.8	131	43.7	20.4	129
London Mills, Ill.	40.4	21.2	132	43.2	20.1	130
Freeburg, Ill.	-	-	-	47.7	19.0	127
Clayton, Ill.	43.1	20.2	130	42.3	20.8	130
Paris, Mo.	43.8	20.0	127	-	-	-
Columbia, Mo.	42.3	20.1	131	41.8	20.5	128
Carrollton, Mo.	-	-	-	33.6	23.2	129
Group IV (composite of 22 strains in 1940 and 24 strains in 1941)						
Wheatland, Ind.	-	-	-	45.9	19.4	123
Evansville, Ind.	40.4	21.4	128	41.6	21.7	128
Mt. Vernon, Ind.	43.5	19.1	128	46.4	17.9	126
Urbana, Ill.	41.5	20.1	129	40.8	21.1	131
Edgewood, Ill.	41.8	20.4	127	40.9	22.1	126
Stonington, Ill.	39.6	21.6	131	41.8	21.7	129
Freeburg, Ill.	-	-	-	46.6	19.4	128
Clayton, Ill.	40.2	20.9	128	40.6	21.6	128
Sikeston, Mo.	41.1	20.3	127	46.6	18.7	123
Elsberry, Mo.	39.1	21.8	130	-	-	-
Columbia, Mo.	41.3	20.6	130	40.0	21.2	129
Carrollton, Mo.	-	-	-	33.4	23.5	130

